Indianapolis-Marion County Forensic Services Agency

Focus

Serving the Citizens & Criminal Justice System of Marion County

Volume 2, Issue 1

January 15, 2111

Communication: An Important Crime Scene Processing Tool

Too many people think of crime scene investigation as being the stuff of fingerprint powders, lasers, and high tech gear. It's true that those things, and many others pieces of equipment, are essential to a specialist in the field, however, one of the more important tools cannot be held or charged with batteries – that is communication.

It's critical for both the Crime Scene Specialist and Detective to start a dialog the moment that they meet at a crime scene. The exchange of information in those first few minutes, and throughout the entire process, sets the stage for a smoothly run investigation, helps ensure more thorough scene processing, and assists greatly in successful case disposition.

Upon arrival at the scene, the Crime Scene Specialist (CSS) relies upon the Detective for the details that have been gathered so far in his investigation in order to decide what course of action should be taken and what areas need to be processed or searched. This gives the CSS a starting point for processing, as he applies his training and experience to the task at hand.

Latent Fingerprint Search on a Vehicle

As the scene unfolds, the CSS keeps the Detective informed as to what is discovered, as many times a CSS will locate items not originally discussed during the initial scene walk through. The Detective and CSS should also determine what processes or actions are needed at a scene and in what order. The CSS has the training to discuss the processing options which are available and assist the Detective with important decisions regarding what evidence is probative and how it might be preserved.

At death scenes, the Detective/CSS team, in turn, should also communicate directly with the Deputy Coroner on the scene. As the Deputy Coroner examines the body closer, more information can be gathered about entry and exit wounds, defensive wounds, and other physical circumstances which could lead to a search for other evidence.

In short, as Detectives keep abreast of what the Crime Scene Unit can and cannot do to enhance their investigation, the Crime Scene Specialists should also understand how a Detective's investigation works. With each knowing the capabilities and needs of the other, and effectively communicating, the overall quality of the work will be enhanced.

- CSS Don Toth
Crime Scene Specialist

iResults - Your Link to Laboratory Reports

iResults is an Intranet-based reporting system the Crime Lab has provided to you to quickly access the status of requests and copies of your final reports. By setting up a secure website linked to the JusticeTrax LIMS-plus application, the lab automatically updates the iResults database whenever a service request is updated. You can now view copies of final lab reports and even check the status of requests – all without calling the lab.

Each iResults user must have a login and password set up in order for them to access the website. Users may receive a short training session over the phone, as well as obtain your login and password, please contact Larry Schultz at the Crime Lab. You must have access to the intranet (i.e. have an indy.gov email address) in order to use the system. Unfortunately, this rules out usage by outside agencies such as the Speedway, Lawrence and Beech Grove Police Departments.

One way to search for case status is to use a case number. This can either be the lab's case number or your agency's case number. An email is generated each time a lab employee completes a case report. This email serves as notification to the requesting detective that the case report has been completed and is available in iResults. The reports are generated in pdf format (Adobe's Portable Document Format) and can be printed or saved by the iResults user.

The link to the logon page is http://jtxpv01/iresults/, but you'll have to request a login name and password before you are able to do anything on the site.

- Larry Schultz
Forensic Operations Manager

Inside this issue:

Of Note:

- Case analysis requests reached 13,694 in 2010, and 47,828 items were analyzed
- 77 CODIS hits were recorded by the IMCFSA during 2010, including four 4 homicide cases, 15 rape cases, 19 robberies and twenty-nine 29 burglaries

Cold Case Success

In July of 1989 an elderly Indianapolis woman was sexually assaulted and beaten to death in her own home. Vaginal and anal samples collected from the victim were found to be positive for the presence of semen. Carpet samples collected at the crime scene where the victim was found were also found to be positive for the presence of semen.

The vaginal samples, as well as one of the five carpet stains collected, were submitted to the FBI DNA laboratory for RFLP analysis. In December of 1989 the FBI released a report listing the RFLP (restriction fragment length polymorphism) results as 'inconclusive' and the remaining case samples were retained in IMCFSA's freezer.

The case was re-examined by the Indianapolis Metropolitan Police Department's Cold Case Unit in 2008 and a request was submitted to the laboratory to analyze the remaining samples. DNA testing using current STR (short tandem repeat) Analysis on the anal samples and carpet samples led to a CODIS database hit on a 51 year old male individual already serving a prison sentence for homicide.

The Combined DNA Index System (CODIS) is a DNA database funded by the United States Federal Bureau of Investigation. It is a computer system that stores DNA profiles created by federal, state, and local crime laboratories in the United States, with the ability to search the database to assist in the identification of suspects in crimes.

The individual whose DNA profile matched the DNA profiles from the anal and carpet samples was charged with murder and sentenced to 55 years in prison. The successful outcome of this cold case demonstrates the importance of long term evidence preservation, advancing DNA technologies and the power of the CODIS database.

- FS Shelley Crispin
DNA Analyst

CODIS - Some Questions Answered

The FBI's Combined DNA Index System (CODIS) is a series of databases containing numerous DNA profiles. The databases of most relevance to the various law enforcement agencies of Marion County are the Forensic Unknown (i.e. crime scene) and Convicted Felon databases. The Convicted Felon database is maintained and administered by the Indiana State Police Crime Laboratory, while the IMCFSA is the Marion County agency responsible for entering data into the forensic unknown database.

Convicted Offender Database

A DNA profile from a convicted offender can be uploaded into this database based upon the nature and seriousness of the crime of which they were convicted. This eligibility is determined by state legislation. At present Indiana is an "all felon" database – in other words any adult convicted of a felony in the state of Indiana will have their DNA profile developed and entered into this database as part of their sentence. Obviously this can change as the legislation changes, but it is not unreasonable to expect that eligibility for entry into this database will only expand and not contract. The actual database only contains the DNA profiles and appropriate identifier. This identifier does not contain any personal information – this information is held outside the database and is not accessible directly from the database.

Forensic Unknown Database

There are five basic questions which should be addressed when determining the CODIS eligibility of a DNA profile based on the source and nature of the profile and these are outlined below. These questions should be answered sequentially and if a profile is excluded at any question then all the subsequent questions can be ignored and the profile exclusion stands.

1. Is there documentation to indicate a crime was committed? If the answer is no, then the profile cannot be uploaded based on the information provided. A profile can only be uploaded if there is evidence of a crime being committed. (A suspect leaves a cigarette butt at a restaurant – unless the suspect committed a crime at the restaurant, the profile is ineligible).

2. Was the profile developed from biological material from crime scene evidence? If the answer is no, then the profile cannot be uploaded. (The victim's body can be treated as a crime scene and any putative perpetrator DNA profiles can be uploaded).

3. Is the profile attributable to a putative perpetrator? If the answer is no, then the profile cannot be uploaded. (Elimination profiles, victim profiles on suspect's clothing are not eligible profiles).

4. Is there a suspect in the case? As long as the DNA profile was recovered from crime scene evidence then the profile is eligible for CODIS upload regardless of the identification of a suspect. However it is much more efficient (and speedy) if a standard from the suspect is submitted to the laboratory as quickly as possible.

5. Was the item seized by law enforcement from the suspect's person, or was the item in the possession of the suspect when collected by law enforcement? If the answer is yes, then the profile cannot be uploaded. (If part of the crime scene is the suspect's residence then any DNA profile developed from this area would generally be ineligible for CODIS entry as it would not be unreasonable to find the suspect's profile).

Similar to the Convicted Offender Database, the Forensic Unknown Database only contains the DNA profile, the DNA analyst responsible, an identifier (usually the case and item numbers) and the date of initial upload. Again there is no personal information stored on the database and this information is not directly accessible from the database.

What this means in reality

There are a few common queries that are encountered at the IMCFSA which we are unable to answer due to the guidelines given above.

A. We cannot engage in "fishing expeditions." Just because a DNA profile could be developed from an item does not necessarily mean it can be searched against either database. Unless the CODIS eligibility questions can be answered appropriately then a DNA profile cannot be searched against the database(s).

B. The IMCFSA has no information as to who is or is not in the Convicted Offender Database. Any enquiries along these lines should be addressed to the CODIS unit at the Indiana State Police headquarters.

C. Do not expect a convicted juvenile felon to be in the CODIS database. In general juveniles are not included in the Convicted Offender Database.

- FS David Smith
Serology Section Supervisor
DNA Analyst

Your Firearms Examiner Made an Identification - What Does it Mean?

Firearms Examiners examine evidence and draw conclusions based on the comparative analysis of the evidence. What does this really mean?

Firearms Examiners have a range of conclusions that they can reach:

- Identification - class and individual characteristics are in sufficient agreement and exceed the best known non-match. Also the likelihood of the toolmarks found on the bullet or cartridge having been made by another firearm is a practical impossibility.

- Inconclusive - there are insufficient class or individual characteristics to render an opinion of identification or elimination.

- Not suitable for comparison - there are insufficient marks to compare the evidence and render any sort of opinion.

- Elimination - class and/or individual characteristics are different, and as such, the bullet or cartridge case could not have been fired in the firearm.

Are there any differences regarding where the cartridge or bullet were identified or to what part of the firearm the identification was made? The answer is yes. What follows are the types of toolmarks that may be identified and the significance of each one.

- Land and groove toolmarks on a bullet: An identification that associates the bullet as being fired in a firearm.

- Firing pin Impression on a cartridge case: An identification that associates the cartridge case to the firing pin of a specific firearm; therefore, it was fired in a specific firearm.

- Breechface marks: Toolmarks that are imparted to the head and primer area of a cartridge case by the pressure exerted on the back of the cartridge case against the breach of the firearm during the act of firing; therefore, it was fired in a specific firearm.

Cartridge Casing Identification to a Firearm Based Upon Breechface Marks on the Primer

- Fire formed chamber marks: Toolmarks that are impressed in the side of the cartridge case from the firearm chamber when the case swells during the act of firing; therefore, it was fired in a specific firearm.

- Anvil marks: Toolmarks produced in rimfire firearms when the firing pin crushes the rim of the cartridge or cartridge face against the front wall of the chamber. If the cartridge has been fired then this toolmark can be used to say the cartridge case was fired in the firearm. If the cartridge was not fired then this toolmark can associate the cartridge as having been chambered in the firearm.

The above identifications are significant since they allow a Firearms Examiner to indicate that a cartridge case or bullet was actually fired in a firearm. The following shows association of ammunition components to a firearm only, but do not necessarily mean those components were fired in a particular firearm.

- Feed ramp marks: Marks imparted by the feed ramp of the firearm onto the nose of the bullet. Therefore, there was an attempt to chamber the cartridge in the in a specific firearm at some point in time.

- Chamber marks: Toolmarks found usually in a limited area on the cartridge or cartridge case sidewalls as the cartridge is fed in or removed from the firearm chamber. These marks occur when chambering a cartridge.

- Extractor marks: Toolmarks left by the extractor hook of a firearm. The extractor is used to remove a cartridge or cartridge case from the chamber of a firearm. The cartridge or cartridge case was chambered in a specific firearm at some point in time.

- Ejector marks: Toolmarks left when the cartridge impacts with the ejector of a firearm. The ejector is used to kick out a cartridge or cartridge case from the firearm. The cartridge or cartridge case was chambered in a specific firearm at some point in time.

- Ejection port marks: Toolmarks left when the cartridge or cartridge case hits the ejection port of the firearm when it is being thrown clear of the firearm. Therefore, the cartridge or cartridge case was chambered in a specific firearm at some point in time.

Bullet Identification to a Firearm Based Upon Land & Groove Toolmarks

- Bolt override marks: Toolmarks that can be found on the side of a cartridge or cartridge case that occurs when the bolt of the firearm scrapes against the top round in the magazine. Therefore, the cartridge or cartridge case was one time in contact with the bolt of a specific firearm.

There are additional toolmarks that may give an association but not necessarily to a specific firearm, therefore, their value may be specific in nature to a given case.

- Magazine lip marks: Toolmarks that appear on either side of the cartridge or cartridge case when loading a cartridge into a magazine. These marks associate the cartridge or cartridge case as having been loaded in a specific magazine.

- Bunter marks: Toolmarks from the tool imparted to the cartridge or cartridge case during manufacture while placing the headstamp information on the head of the cartridge or cartridge case. The value of this mark is case specific but allows the examiner to associate the cartridge or cartridge case back to the tool used to make this headstamp at the factory. The number of headstamps that can be made by this tool varies from factory to factory.

- Resizing/Reloading marks: Toolmarks specific to reloaders, resizing dies or the act of reloading. These toolmarks can be used to associate marks found on a cartridge or cartridge case back to a specific reloading machine or reloading tool. Again, these toolmarks may have great value in certain circumstances.

IMCFSA Firearms Examiners are prepared to discuss their findings and significance with Detectives, Prosecutors and the Courts. While examiners try to write reports that are straight forward and easy to understand, if questions arise, please do not hesitate to call for further explanation.

- FS Mike Putzek
Firearms Section Supervisor

Indianapolis-Marion County
Forensic Services Agency
40 S. Alabama St.
Indianapolis, IN 46204

Phone: 317-327-3670
Fax: 317-327-3607
http://www.indy.gov/eGov/County/FSA/Pages/home.aspx

Customer Survey Link:
http://spspp01/sites/Crimelab/Lists/Customer%20Survey/overview.aspx

Serving the Citizens & Criminal Justice System of Marion County

Laboratory Management Team:
Michael Medler, Laboratory Director
Ronald Blacklock, Deputy Laboratory Director
Brenda Keller, Quality Assurance Manager
Muhammad Amjad, DNA Tech. Leader/Supervisor
Lee Ann Harmless, FDE/Latent Prints Supervisor
Robert McCurdy, Chemistry Unit Supervisor
Michael Putzek, Firearms Section Supervisor
Mark Wallace, Crime Scene Spec. Supervisor
David Smith, Serology Section Supervisor
Amanda Sondgeroth, Forensic Evidence Tech. Sup.
Larry Schultz, Forensic Operations Manager
Jeani Nolte, Forensic Administrator
Newsletter edited by Ronald Blacklock

The Indianapolis-Marion County Forensic Services Agency shall provide forensic services to the Marion County Community by supporting the needs of the Criminal Justice System. The forensic services provided shall be built on a foundation of quality, integrity, accountability and ethics. All I-MCFSA personnel shall strive to meet forensic needs of today and into the future in all their work endeavors.

Biology Rush Analysis Requests

A combination of ever changing court dates, and a large backlog of casework and investigations that need forensic answers, often leads to requests for an expedited (rush) analysis of evidence. While the Biology Unit makes every attempt to meet the deadlines associated with the rush requests there are some commonly encountered problems which, if resolved, would increase the timely analysis of evidence.

The most commonly encountered problem is the lack of suspect and/or victim DNA standards. It is important to remember that any DNA profile developed from an item of evidence is useless without the profiles from the person(s) involved. The lack of DNA standards will hold up the analysis and delay the issuance of a final report. The only exceptions are cases destined for CODIS upload without identified suspects and these are not typically expedited.

Forensic Biologist - Sperm Cell Identification

The person requesting the rush should also ensure they have a thorough knowledge of the case and the evidence. It is not uncommon for a rush request to be received but the requestor is vague on the details of what needs to be tested. This requires the analyst to divert their time from actual analysis to conduct an inquiry into basic case facts. If the requestor is fully versed in the background of the case, they can then produce an accurate, precise request.

When a rush request is received at the laboratory it is often necessary for the analyst to contact the deputy prosecutor or detective assigned to the case. It is not uncommon for phone calls and e-mails to go unanswered for up to a week or more with no indication of the recipient being away or on leave. This lack of communication causes delays which should be avoided when dealing with a rush analysis request.

In the case where a rush request has a specific deadline, e.g. confirmed court date, it is essential to inform the lab of the rush status of the case at the earliest opportunity. A delay of even a few days can put other cases behind and put pressure on the laboratory. A rush request is much easier to work when it can be combined with all the other cases being analyzed rather than being the sole focus of the analyst.

The crime lab always tries to accommodate rush requests for analysis, but if the requested rush case does not truly merit expedited status, then the system will soon become overloaded. If all (or the majority of cases) have rush requests then they cannot all be worked in a timely manner. The expedited analysis of evidence (upon request) is a service offered by the crime lab but its judicious use is required for the system to function efficiently.

- FS David Smith
DNA Analyst
Serology Section Supervisor